69. A method for analyzing at least one individual gas component in a multi-component gas mixture, comprising:

(a) providing an array of at least two chemo/electro-active materials connected in parallel circuitry, each chemo/electro-active material exhibiting a different electrical response characteristic upon exposure to the individual gas component than each other chemo/electro-active material;

(b) exposing the array to the gas mixture ;

(c) determining an electrical response of each chemo/electro-active material upon exposure of the array to the gas mixture;

(d) determining a value for the temperature of the gas mixture independently of the determination of the electrical responses of the chemo/elctro-active materials; and

(e) digitizing the electrical responses and the temperature value, and calculating a value from the digitized electrical responses and temperature value to perform an analysis of the individual gas component.

70. A method according to Claim 69 wherein the array is situated within the gas mixture, which has a temperature of about 400°C or more.

71. A method according to Claim 69 wherein the gas mixture is an emission from a combustion process.

72. A method according to Claim 69 wherein the component gases in the gas mixture are not separated.

73. A method according to Claim 69 wherein the temperature of each chemo/electro-active material is determined substantially only by the variable temperature of the gas mixture.

74. A method according to Claim 69 wherein the analysis is performed from the electrical responses of

the chemo/electro-active materials upon exposure to the multi-component gas mixture only.

75. A method according to Claim 69 wherein the analysis performed comprises calculating the concentration within the gas mixture of the individual gas component.

76. A method according to Claim 69 wherein at least one chemo/electro-active material, when at a temperature of about 400°C or more, (i) has an electrical resistivity in the range of about 1 ohm-cm to about 10^5 ohm-cm, and (ii) exhibits a change in electrical resistance of at least about 0.1 percent upon exposure of the material to an individual gas component, as compared to the resistance before exposure.

77. A method according to Claim 69 wherein the electrical response characteristic of each material upon exposure to the gas mixture at a selected temperature is quantifiable as a value, and the response value of at least one material is constant or varies by no more than about twenty percent during exposure of the material to an individual gas component at the selected temperature for a period of at least about one minute.

78. A method according to Claim 69 wherein the electrical response is selected from the group consisting of resistance, impedance, capacitance, voltage or current.

79. A method according to Claim 69 wherein the array is situated in the gas mixture, which has a temperature of less than about 400°C, and the array has a substantially constant temperature of about 400C or more.

80. A method according to Claim 69 wherein at least one chemo/electro-active material is a metal oxide.

81. A method for calculating the concentration of at least two individual analyte gas components in a

multi-component gas mixture having a temperature of about 400°C or more, comprising:

(a) providing within the gas mixture an array of at least three chemo/electro-active materials, each chemo/electro-active material having a different electrical response characteristic upon exposure to each of the individual analyte gas components than each of the other chemo/electro-active materials, wherein at least one chemo/electro-active material, when at a temperature of about 400°C or more, (i) has an electrical resistivity in the range of about 1 ohm-cm to about 10^5 ohm-cm, and (ii) exhibits a change in electrical resistance of at least about 0.1 percent upon exposure of the material to an analyte gas component, as compared to the resistance before exposure;

(b) determining an electrical response of each chemo/electro-active material upon exposure of the array to the unseparated components of the gas mixture; and

(c) calculating the concentration of each of the individual analyte gas components from the electrical responses of the chemo/electro-active materials upon exposure to the multi-component gas mixture only.

82. A method according to Claim 81 wherein the gas mixture is an emission from a combustion process.

83. A method according to Claim 81 wherein the temperature of each chemo/electro-active material is determined substantially only by the variable temperature of the gas mixture.

84. A method according to Claim 81 wherein the electrical response characteristic of each material upon exposure to the gas mixture at a selected